

# Transforming Energy Management Streamlined Energy and Carbon Reporting

Barker

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# Agenda



Is it just me?



So, what does it mean?



How are we doing ?



# It's not just academies – it's any organisation which has...

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**consumption** | must be over 40,000 kWh in a reporting period



**assets** | stated in your accounts must be worth over £18 million



**people** | must have a headcount of over 250 people



**turnover** | in the reporting period must be over £36 million



# Does it apply to my Trust?



**consumption** | discount this question as a single form primary will have annual consumption of over 40,000 kWh in a reporting period



**assets** | are the schools building assets stated in your accounts worth over £18 million?



**people** | do you have a headcount of over 250 people [not 250 full time equivalent]?



**turnover** | is the funding you receive from the DfE over £36 million?



# It applies to about 500 trusts and 5,200 academies



**assets** | 870 academy trusts have assets stated in your accounts worth over £18 million



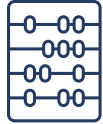
**people** | 480 trusts have a headcount of over 250 people



**turnover** | 90 trusts have received over £36 million of funding from the DfE in the 2019 – 2020 academic year



# So, what does it mean?



**capture** | collect data on gas, electricity, oil consumption in buildings as well as any vehicle and staff mileage claims



**analyse** | use a simple model to analyse the data and create benchmarks that can be easily tracked in the long term



**report** | develop a single page report to be added into the annual accounts to be returned to the DfE by December 2021



# capture | detail

An academy trust that meets the thresholds must publish, as a minimum:

- It's annual **UK energy use (in kWh)**, as a minimum relating to gas, purchased electricity and transport fuel and associated **greenhouse gas emissions** (in tonnes of carbon dioxide equivalent (CO<sub>2</sub>e)) this includes any PFI building and trust head offices.
- An emissions **intensity ratio** chosen by the academy trust. Intensity ratios compare emissions data with an appropriate business metric or financial indicator, such as pupil numbers, to allow comparison over time or with other organisations.
- The **methodologies** used to calculate the required information.
- A **narrative** of measures taken to improve energy efficiency in the period of the report. If no measures have been taken, this should be stated.
- In future years, the **prior year equivalent figures** are also required to be disclosed for comparison, but this is not mandatory in the first year.



# capture | keep it simple



How much electricity have you used?



How much gas, oil or LPG have you used?



How many miles have your vehicles travelled?



How many miles have your staff travelled by car?



How many students have been on roll?





1

**direct green house gas emissions** | Includes emissions from activities owned or controlled by the academy trust that release emissions into the atmosphere. Examples include emissions from combustion in owned or controlled boilers and vehicles.

**Report as a minimum | emissions from combustion of gas and fuel for transport purposes**

2

**indirect energy emissions** | Includes emissions from own consumption of purchased electricity, heat, steam and cooling. These are a consequence of the academy trust's activities but are from sources not owned/controlled.

**Report as a minimum | emissions from purchased electricity.**

3

**indirect energy emissions** | Emissions that are as a consequence of the academy trust's actions but the source is not owned or controlled, and which are not classed as scope 2 emissions. For example business travel in private cars.

**Report as a minimum | emissions from business travel in rental or employee-owned vehicles where the academy trust is responsible for purchasing the fuel.**



# analysis | methodology

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## Streamlined Energy and Carbon Reporting | Academies

ID	Academy Name	students on role	Electric Standard	Electric Renewable	Gas	Oil	LPG	Academy Vehicle	Staff Vehicle   Standard	Staff Vehicle   Electric
1001	Trust 001	-							40,000	45,000
123456	Academy 001	1,291	315,580	98,000	283,288			4,490	1,133	
123457	Academy 002	1,802	300,000		996,339	178,300		10,947	278	
123458	Academy 003	290	159,799		400,000			12,354		
123459	Academy 004	1,076	566,345		234,621			52,263	72	
123460	Academy 005	443	588,186		3,122,687			647		
123461	Academy 006	341	789,658	100,000	743,425			-	1,085	
123462	Academy 007	651	721,019		157,562			7,774		
123463	Academy 008	342	494,575		807,524			-	-	
123464	Academy 009	570	120,000		318,668			2,500	710	
123465	Academy 010	606	200,090		361,541			-		
Total		7,412	4,255,252	198,000	7,425,655	178,300	-	90,975	43,278	45,000
Conversion Factor			0.2123	0.0000	0.1832	0.2468	0.2145	0.3042	0.2298	0.0810
Tonnes CO <sup>2</sup> e			903.52	0.00	1360.08	44.00	0.00	27.67	9.95	3.64



# reporting | intensity ratio

external



**carbon**

tonnes of CO<sup>2</sup>e per student

internal



**energy**

kWh per square meter

kWh per student



**money**

£ per square meter

£ per student



# reporting | improving energy efficiency



smart metering



data analysis



energy audit



controls upgrade



LED lighting



boiler replacement



photovoltaic panels



solar thermal panels



cloud computing



ventilation & cooling upgrade





# reporting | sample report

## Streamlined Energy and Carbon Reporting

UK Greenhouse gas emissions and energy use data for 1 September 2020 to 31 August 2021

<b>Energy consumption used to calculate emissions (kWh)</b>	<b>12,270,016</b>
Gas [kWh]	7,425,655
Oil [kWh]	178,300
LPG [kWh]	0
Electricity [kWh]	4,255,252
Electricity   Renewables [kWh]	198,000
Transport Fuel [kWh]	211,368
<b>Scope 1 emissions in metric tonnes CO<sup>2</sup>e</b>	<b>1,441.17</b>
Gas consumption	1,365.36
Oil consumption	48.14
LPG consumption	0.00
Owned transport – mini-buses	27.67
<b>Scope 2 emissions in metric tonnes CO<sup>2</sup>e</b>	<b>992.07</b>
Purchased electricity	992.07
Purchased electricity renewables	0.00
<b>Scope 3 emissions in metric tonnes CO<sup>2</sup>e</b>	<b>12.14</b>
Business travel in employee owned vehicles [petrol / diesel]	12.14
Business travel in employee owned vehicles [electric]	0.00
<b>Total gross emissions in metric tonnes CO<sup>2</sup>e</b>	<b>2,445.38</b>

Total number of students within the trust 7,412.00

Intensity ratio | Tonnes CO<sup>2</sup>e per pupil 0.33

## Quantification and Reporting Methodology

We have followed the 2019 HM Government Environmental Reporting Guidelines. We have also used the GHG Reporting Protocol – Corporate Standard and have used the 2020 UK Government's Conversion Factors for Company Reporting.

## Intensity measurement

The intensity measure we are using as a trust assessed the Tonnes of CO<sup>2</sup>e emitted per pupil and in our accounts for 2019 - 2020 the intensity ration was:



## Measures planned to improve energy efficiency in the next 12 months

We have invested in LED lighting across the Trust estate with the aim of reducing energy consumption by over 20 %

We are installing PV panels on the roof of the trusts academies with the aim of reducing energy consumption by over 20 %

We have installed smart meters across all sites to improve our understanding of energy consumption

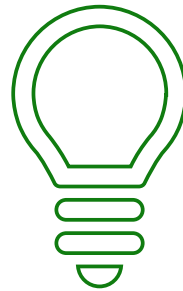


# What happened in 2020 in the 100 largest trusts?



carbon

over 250,000 tonnes of CO<sup>2</sup>



energy

over 1.2 billion kWh



miles

Over 10 million miles driven



# How do I compare?

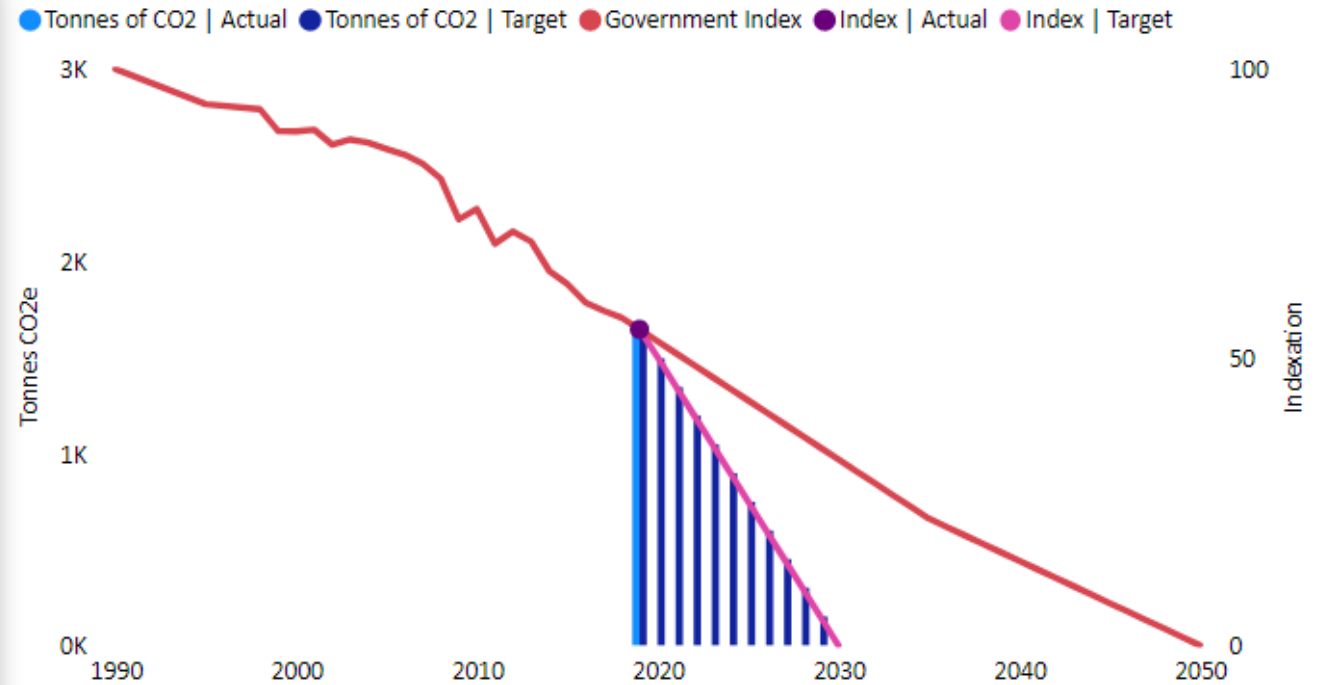
①	0.1 Tonnes CO <sub>2</sub> e per pupil or less	4%
②	Between 0.1 and Tonnes 0.2 CO <sub>2</sub> e per pupil	21%
③	Between 0.2 and 0.3 Tonnes CO <sub>2</sub> e per pupil	42%
④	Between 0.3 Tonnes and 0.4 CO <sub>2</sub> e per pupil	23%
⑤	Over 0.4 Tonnes CO <sub>2</sub> e per pupil	10%



# tracking progress

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Year	Index   Actual	Index   Target	Tonnes of CO2   Actual	Tonnes of CO2   Target
2019	54.8194	54.8194	1,645.10	1,637.00
2020		50.0000		1,493.08
2021		45.0000		1,343.78
2022		40.0000		1,194.47
2023		35.0000		1,045.16
2024		30.0000		895.85
2025		25.0000		746.54
2026		20.0000		597.23
2027		15.0000		447.93
2028		10.0000		298.62
2029		5.0000		149.31
2030		0.0000		0.00





# lessons to be learnt



Report on tonnes of CO<sup>2</sup>e not kilos



Make sure you are using the correct conversion factors



Remember renewables on site or your green energy contract



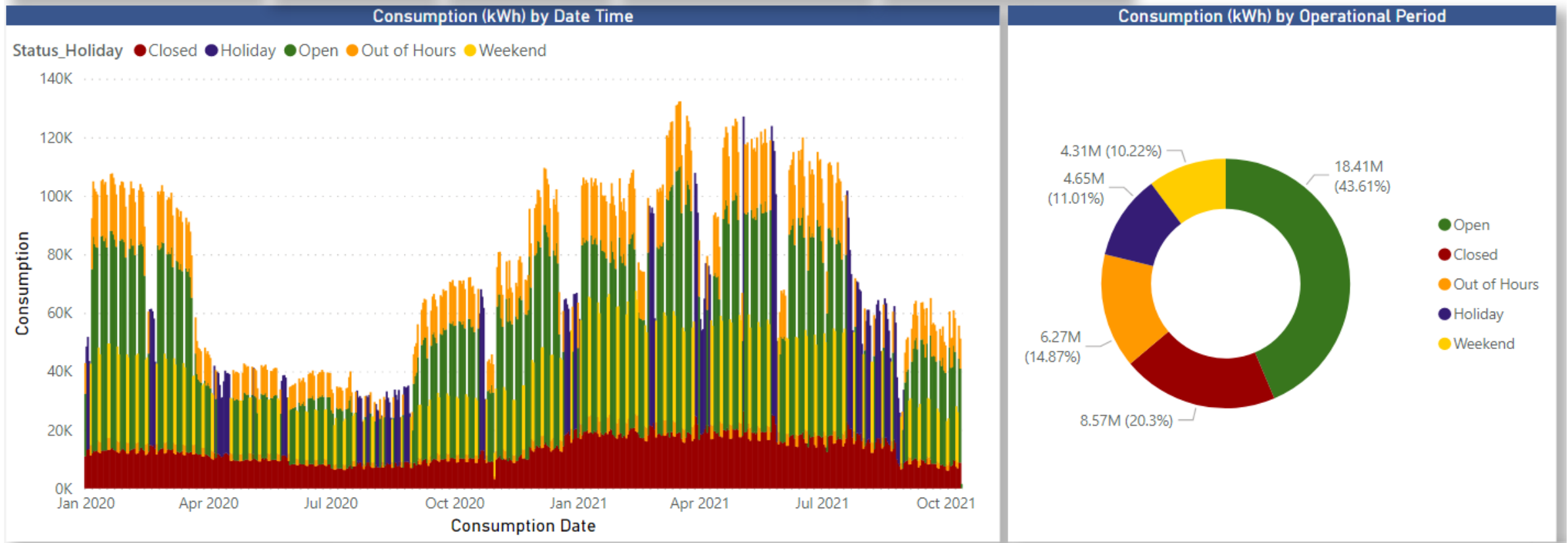
Check the mileage as some trust data seems very high



Don't over complicate it you only need a trust wide position not a schools by school one



# troubling consumption patterns



# five quick wins



Install PV | reduced carbon and cost but not consumption – aim for 20% of consumption



Install LED | should reduce consumption between 10-15% in primary and 20 – 25% in secondary schools



Controls | understanding your controls or replacing them if you don't or they don't work



Cloud computing removing the need for air-conditioned server rooms



Just switch stuff off.



# Next steps

1. SECR tool
2. Implementing energy strategy
3. Next webinar: Transforming Energy Management Series

**Delivering Solar PV and LED lighting projects**

Wednesday 27<sup>th</sup> October 12:00





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